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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/619,958	07/14/2003	Takuro Sugiura	9281-4605	7800
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Brinks Hofer Gilson & Lione				
P.O. Box 10395				
Chicago, IL 60610				
			EXAMINER	
			CHOI, JACOB Y	
			ART UNIT	PAPER NUMBER
			2875	

DATE MAILED: 06/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/619,958

Applicant(s)

SUGIURA ET AL.

Examiner

Jacob Y. Choi

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7/2003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 7/14/2003 was considered by the examiner.

Specification

3. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims 1-4 7-9, 11-14, and 17 rejected under 35 U.S.C. 102(e) as being anticipated by Maeda et al. (USPN 6,883,924).

Regarding claim 1, Maeda et al. discloses a liquid crystal display (LCD), a light guide plate (16), an intermediate light guide (14) disposed along one side face (incident side) of the light guide plate (16), and a light emitting element (12a, 12b) disposed at an end face in a lengthwise direction of the intermediate light guide (Figure 1), wherein the side face of the light guide plate (16) serves as a light incident face from which light is introduced, light emitted from the light emitting element is introduced into the light guide plate through the intermediate light guide (14) and the light incident face, and the light propagating inside the light guide plate (16) is emitted from one surface of the light guide (16), and wherein the intermediate light guide (14) protrudes from the light guide plate (16) in a direction along the light incident face of the light guide plate (16) toward the light emitting element (12a, 12b), a side face of the intermediate light guide (14) opposing the side face of the light guide plate serves as an emergent face from which the light from the light emitting element emerges toward the light guide plate (16), and

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an outer side face of the intermediate light guide (14) remote from the emergent face serves as a reflecting face (18, 24, 118) for reflecting the light propagating inside the intermediate light guide (14).

Regarding claim 2, Maeda et al. discloses the outer side face of the intermediate light guide (14) is provided with a prism face (18, 20) having a plurality of grooves of wedge-shaped cross section, and a reflective film (18, 24, 118) formed on the prism face.

Regarding claims 3 & 14, Maeda et al. discloses the outer side face of the intermediate light guide (14) is provided with an uneven face (18, 20) having a plurality of minute irregularities, and a reflective film (18, 24, 118) formed on the uneven face.

Regarding claim 4, Maeda et al. discloses the prism face of the intermediate light guide (14) is provided distant from the end face of the intermediate light guide.

Regarding claims 7 and 17, Maeda et al. discloses the prism face on the outer side face of the intermediate light guide extends from an extension line of an end face of light guide plate (16) close to the light emitting element, the extension line reaching the outer side face of the intermediate light guide (14).

Regarding claim 8, Maeda et al. discloses a pitch (d) of the grooves one of exponentially and quadritically decreases away from the light-emitting element.

Regarding claim 9, Maeda et al. discloses a depth of the grooves one of exponentially and cubically increases away from the light emitting element.

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6. Claims 1-4 7-9, 11-14, and 17 rejected under 35 U.S.C. 102(e) as being anticipated by Sasagawa et al. (USPN 6,636,283).

Regarding claim 1, Sasagawa et al. discloses a liquid crystal display (LCD), a light guide plate (1), an intermediate light guide (2) disposed along one side face (incident side) of the light guide plate (1), and a light emitting element (3) disposed at an end face in a lengthwise direction of the intermediate light guide (Figures 1 and 2), wherein the side face of the light guide plate (1) serves as a light incident face from which light is introduced, light emitted from the light emitting element is introduced into the light guide plate through the intermediate light guide (2) and the light incident face, and the light propagating inside the light guide plate (1) is emitted from one surface of the light guide (1), and wherein the intermediate light guide (2) protrudes from the light guide plate (1) in a direction along the light incident face of the light guide plate (1) toward the light emitting element (12), a side face of the intermediate light guide (2) opposing the side face of the light guide plate serves as an emergent face from which the light from the light emitting element emerges toward the light guide plate (1), and an outer side face of the intermediate light guide (2) remote from the emergent face serves as a reflecting face (11) for reflecting the light propagating inside the intermediate light guide (2).

Regarding claim 2, Sasagawa et al. discloses the outer side face of the intermediate light guide (2) is provided with a prism face (12) having a plurality of grooves of wedge-shaped cross section, and a reflective film (11) formed on the prism face.

Regarding claims 3 & 14, Sasagawa et al. discloses the outer side face of the intermediate light guide (2) is provided with an uneven face (12) having a plurality of minute irregularities, and a reflective film (11) formed on the uneven face.

Regarding claim 4, Sasagawa et al. discloses the prism face of the intermediate light guide (2) is provided distant from the end face of the intermediate light guide.

Regarding claims 7 and 17, Sasagawa et al. discloses the prism face on the outer side face of the intermediate light guide extends from an extension line of an end face of light guide plate (1) close to the light emitting element, the extension line reaching the outer side face of the intermediate light guide (2).

Regarding claim 8, Sasagawa et al. discloses a pitch of the grooves one of exponentially and quadratically decreases away from the light-emitting element.

Regarding claim 9, Maeda et al. discloses a depth of the grooves one of exponentially and cubically increases away from the light emitting element.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 5, 6, 10, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maeda et al. (USPN 6,883,924).

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Regarding claims 5, 6, 15, and 16, Maeda et al. discloses the possible workable range of the prism face on the outer side face of the intermediate light guide (Figures 5, 9, 11, 13, 16, 25).

Maeda et al. does not clearly disclose details of the workable range of -1mm to $+0.5\text{ mm}$ or 0.5mm to $+0.5\text{mm}$.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize optimum range to provide the light guide plate with uniform and high intensity light output, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Note: if ranges claimed produce new and unexpected result which is different in kind and not merely in degree from results of prior art; such ranges are termed "critical" ranges, and applicant has burden of proving such criticality; even though applicant's modification results in great improvement and utility over prior art, it may still not be patentable if modification was within capabilities of one skilled in art; more particularly, where general conditions of claim are disclosed in prior art, it is not inventive to discover optimum or workable ranges by routine experimentation.

Regarding claim 10, Maeda et al. discloses the possible workable range of the angle defined by the inclined faces (Figures 2, 4, 7, 10, 12, 15, 18, 24, 33)

Maeda et al. does not specifically disclose details of the workable range of 105 degrees to 115 degrees.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize optimum range to provide the light guide plate with uniform and high intensity light output, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

9. Claims 5, 6, 10, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasagawa et al. (USPN 6,636,283).

Regarding claims 5, 6, 15, and 16, Sasagawa et al. discloses the possible workable range of the prism face on the outer side face of the intermediate light guide.

Sasagawa et al. does not clearly disclose details of the workable range of -1mm to $+0.5\text{ mm}$ or 0.5mm to $+0.5\text{mm}$.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize optimum range to provide the light guide plate with uniform and high intensity light output, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Note: if ranges claimed produce new and unexpected result which is different in kind and not merely in degree from results of prior art; such ranges are termed "critical" ranges, and applicant has burden of proving such criticality; even though applicant's modification results in great improvement and utility over prior art, it may still not be patentable if modification was within capabilities of one skilled in art; more particularly,

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where general conditions of claim are disclosed in prior art, it is not inventive to discover optimum or workable ranges by routine experimentation.

Regarding claim 10, Sasagawa et al. discloses the possible workable range of the angle defined by the inclined faces (Figures 19, 20D, 24B, 25-27)

Sasagawa et al. does not specifically disclose details of the workable range of 105 degrees to 115 degrees.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize optimum range to provide the light guide plate with uniform and high intensity light output, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Huang (US 2003/0031006) – surface illuminating device

Ohizumi et al. (USPN 6,802,619) – surface-emitting device and liquid crystal display device with enhanced utilization efficiency of light from light source

Mabuchi et al. (US 2002/0008969) – bar-shaped light guide, beam lighting device using the bar-shaped light guide, and surface lighting device using the beam lighting device

Baba (US 2002/0080433) – light unit using point light source, and liquid crystal display using the same light unit

Egawa et al. (US 2002/0030986) – spread illuminating apparatus

Suzuki et al. (USPN 6,752,506) – spread illuminating apparatus with light reflection member

Lammers (USPN 6,672,734) – illumination system and display device

Akaoka (USPN 6,461,007) – spread illuminating apparatus

Tai et al. (USPN 5,668,913) – light expanding system for producing a linear or planar light beam from a point like light source

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacob Y. Choi whose telephone number is (571) 272-2367. The examiner can normally be reached on Monday-Friday (10:00-7:00).


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (571) 272-2378. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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JOHN ANTHONY WARD
PRIMARY EXAMINER